

ROM Boot Configuration

Auto-start for 162-board systems

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This note describes how to prepare a version of the local station/IRM system code for automatic boot using the ROM Boot option supported by 162Bug.

For most 162-board-based systems, such as IRMs, the normal start-up practice is to use the Network Boot option under 162Bug. After reset, or optionally after power-on reset only, when 162Bug takes control, it can be set up via the `env` parameters to automatically download over the network from a server node using the TFTP protocol. A server node can be any local station/IRM, or it can be a workstation or other host. When it is a local station/IRM, the file name that should be used in that file transfer protocol is *system*. The TFTP local application, which provides such server support, recognizes this file name as a reference for 128K of memory at 00120000, where the system code is located before it is transferred to 000E0000 for execution. When the server node is another host, the file name should be as is appropriate for that host to indicate the executable image file to be transferred.

For a server node, however, it is desirable that it come up by itself without having to use TFTP, as it is the source for other stations. The 162Bug program includes support for a ROM Boot option, which means that local memory will be searched for a valid program to execute, and control will be passed to it. A valid program must conform to certain rules. A 16-byte header precedes the code, and a checksum word is at the end. This is explained in detail in Chapter 1 of the manual "Debugging Package for Motorola 68K CISC CPUs User's Manual."

These steps can be used to prepare for automatic execution via ROM Boot:

1. In an unused area of DRAM, say 00200000, prepare a header as follows:

00200000	424F	4F54	0000	0010	Ascii 'BOOT', offset to code start
00200008	0002	0000	5359	5354	Length of code, name of code SYST

2. Copy the system code into the memory just after this header, at 00200010.

3. Enter 162Bug and use the `cs` command to compute the checksum word.

```
cs 200000:FFFF
```

4. Using `mm`, install the checksum word at the end of the code, at 0021FFFE.

5. Program the Flash memory with the result, as follows:

and the “ROM Boot Direct Starting Address” FF880000 is entered.

The above procedure allows a server node to come up automatically after power-on.